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Lichen species new to Turkey and Asia

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Abstract—Three species of lichenized fungi – *Lecania spadicea, Opegrapha subelevata* and *Physconia isidiigera* – are new to Turkey. *P. isidiigera* is also new to Asia.

Keywords — *Ascomycota*, biodiversity, Konya, Uşak, Heybeliada

Introduction

Studies on the lichen flora of Turkey are not as extensive as elsewhere, and so the lichen flora is relatively poorly known. Recently, however, many new lichen taxa have been recorded for Turkey (Candan & Özdemir Türk 2008, Yazici et al. 2008a,b, Yazici & Aptroot 2008). Three species new to Turkey are described below.

Materials and methods

The present report is based on collections from three different provinces (Konya, İstanbul and Uşak) made between 15–20 August 2007. Air-dried lichen samples were examined using stereo and light microscopes. Secondary metabolites were identified by the usual spot tests (Brodo et al. 2001; Esslinger 1994, 2000; Mayrhofer 1988;, Purvis et al. 1992; Torrente & Egea 1989). Vouchers are stored in the herbarium of the Biology Department, Faculty of Sciences and Arts, Karadeniz Technical University, Trabzon, Turkey (KTUB).

Species

Lecania spadicea (Flot.) Zahlbr.

Specimen examined: Konya: Seydişehir, main roadside to Seydişehir, 37°28'20"N, 31°49'30"E, on calcareous rock, 1130 m, 15 August 2007, Yazici 1557.

Thallus crustose, endolithic, effigurate, roughly leafy, to (2–)3 cm in diam., brown to dark brown. Apothecia numerous, to 1.5(–1.8) mm in diam., adpressed, sessile; disc sometimes convex, brown to red-brown or dark brown and slightly white pruinose. Thalline exciple swollen.

Hymenium 50–80 µm tall; epithecium orange to red-brown, epithecial pigment diffuse in hymenium. Paraphyses simple, gradually widening at apices, long, slightly clavate at apices with brown pigment. Asci 8-spored, *Bacidia*-type, ascospores colourless, 2-septate, thin-walled, sometimes slightly curved, 10–14 × 3–6 µm.

A mediterranean lichen, found on inclined calciferous rocks; especially common on walls in small urban areas.

Collection site — The climate is continental with hot dry summers and cold snowy winters, with a mean annual rainfall of 750 mm and mean annual temperature of 11–12 °C. The roadside locality lies near poor forests in a well lit, extensive-plain surrounded by mountains. Mean annual rainfall is 750 mm while annual temperature is 11–12°C.

Known distribution: Europe (Greece: Crete, Kerkira Islands; France, Germany, Italy), Egypt, Syria, Thailand. New to Turkey.

Remarks – *Lecania spadicea* is similar to *L. aipospila,* but in *L. aipospila* the surface is smooth and coarsely knobby warted to papillate while *L. spadicea* has an effigurate to roughly leafy thallus. Apothecia in *L. spadicea* have mostly swollen edges, low to moderately arched and larger brown discs while those in *L. aipospila* are smaller and lightly to strongly arched with red-brown.

Opegrapha subelevata Nyl.

Specimen examined: İstanbul: Heybeliada, 40°52'46"N, 29 °05'29"E, on a pebbled concrete garden wall, 17 m, 20 August 2007. Yazici 1555. (accompanying species: *Diploicia canescens* and *Caloplaca flavescens*).

Thallus thin to somewhat thick or ± immersed, smooth to finely cracked and granular, ash- to yellow-grey. Apothecia 0.5–1.5(–2.5) × 0.12–0.3(–0.4) mm, scattered to crowded, elongate, ± sessile, elevated, occasionally furcate, ends often acute; disc usually exposed, densely mauve-grey pruinose; exciple thin, non-pruinose, K–.

Epithecium brown; hymenium 80–90µm tall. Subhymenium colourless 30–50 µm; mature ascus 55–75 × 14–18 µm, young ascus 40–50 ×12–13 µm. Ascospores 20–25 × 6–7µm, 3-septate, ± elongate-clavate, ellipsoid–fusiform, sometimes becoming brownish when old. Conidia 4–5 × 0.8–1 µm, bacilliform or slightly curved. Thallus P–, K–, KC–, C– UV–.

A mild-temperate lichen, found on calcareous or basic siliceous rocks, sometimes on mortar walls, mostly near the coast. On steep limestone rocks, mortar or ± basic sandstone or slate rocks, very rare.

Collection site – The predominately mild climate has cold, hot, and two transitional seasons, with temperatures never below freezing and northern winds dominating. The

gently sloped terrain is sunny and covered with pine forests intermixed with numerous house gardens.

KNOWN DISTRIBUTION: Europe (Channel Is, England,; Germany, France, Italy, Spain, Portugal, Greece — Crete, Kalimnos, Kerkira, Kos), Algeria, Egypt, Israel, Syria, Thailand. New to Turkey.

REMARKS—The prominent apothecia with open grey-blue pruinose discs and black, naked margins are distinctive. *Opegrapha subelevata* is distinguished from *O. ochrocheila* by its larger apothecia, shorter conidia, and larger ascospores.

Physconia isidiigera (Zahlbr.) Essl.

SPECIMEN EXAMINED: Uşak: Karahallı, Paşalar village, 38°20'32"N, 29°29'17"E, on bark of *Quercus* sp., 960 m, 20 August 2007, Yazici 1556.

Thallus 3–4 cm in diam., heavily pruinose, whitish to greyish to brownish, with conspicuously squarrose black rhizines and usually with dissected lobes; characterized by more or less elongate, linear, marginal and sometimes recurved but not lip-shaped soralia, which are sometimes weakly reflexed in part, but not at all labriform; soredia coarse along margins, becoming confluent in centre of old thalli, especially in dry situations, finely granular to distinctly corticate in most cases and thus strongly resembling isidia in some forms; medulla white; upper cortex paraplectenchymatous; lower surface pale brown to black, at least in the centre of the thallus. Soralia K–, KC–. Medulla K–, KC–.

Abundant in the mountains on bark, wood and rock, on barks of *Quercus* sp., and also on base of *Magnolia* sp.

COLLECTION SITE – The climate is mediterranean with hot dry summers and cold snowy winters, a mean annual rainfall of 557 mm and a mean annual temperature of 12.5 °C, with maximum and minimum means of 23.6°C (July) and 2.4°C (January) respectively. The site is well lit and lies among agricultural areas and extensive plains.

KNOWN DISTRIBUTION: Canada (Alberta), U.S.A. (California), England. New to Turkey and Asia.

REMARKS – The thallus of *Physconia isidiigera* closely resembles *P. detersa*, which is differentiated by thinner walled cortical cells; *P. isidiigera* specimens with ecorticate, granular (non-isidioid) soredia have been often mistaken for *P. detersa,* but the upper cortex in *P. detersa* is scleroplectenchymatous, not distinctly paraplectenchymatous as in *P. isidiigera.*

Physconia enteroxantha is also similar but is distinguished by a pale yellow to almost white medulla and different chemistry (KC+ yellow-orange, sometimes slight but always detectable and K+ yellow-orange).

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